

Date: Monday, 6/12/2006 3:20:16 PM  
 User: Kim Johnston

## Process Sheet

Customer : CU-DAR001 Dart Helicopters Services Drawing Name : SKID TUBE ASSEMBLY  
 Job Number : 27478A  
 Estimate Number : 10023  
 P.O. Number : N/A Part Number : D205634041  
 This Issue : 6/12/2006 S.O. No. : N/A Drawing Number : D2580 REV C  
 Prsht Rev. : NC Project Number : N/A  
 First Issue : N/A Type : LANDING GEAR Drawing Revision : C  
 Previous Run : 27265A Material : N/A  
 Due Date : 5/7/2006 Qty: 1 Um: Each  
 Written By : *See Comment Below*  
 Checked & Approved By : *06.06.13*  
 Comment : Est Rev: N 02.08.28 FP was QC5 in Step 27; Added QC5 to Step 30 KJ  
 Est Rev. O 06.02.28 Added paperwork EC

## Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
1.0	D25001190	Ext'n -1' Beam Tube 4"



Comment: Qty.: 1.0400 Each(s)/Unit Total : 1.0400 Each(s)

Pick:

Qty	Part Number	Description	Batch
1	D2500-1-190	Skid Tube Extrusion	B24669 Pm' 06-06-22①

2.0	DC	DOCUMENT CONTROL
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Comment: DOCUMENT CONTROL

Photocopy D205-634 bluefile &amp; type labels per PPP D205-634 CHG001

*KS 06.06.26*

3.0	D2596	205 Web
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Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
1	D2596	205 Web	B27655 Pm' 06-06-22①

4.0	LANDING GEAR 1	LANDING GEAR RESOURCE 1
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Comment: LANDING GEAR RESOURCE 1

1- Inspect mat'l D2500-1-190 for damage

*Pm' 06-06-22①*

2-Cut D2500-1-190 per Dwg D2580 if necessary Deburr ends

*Pm' 06-06-22①*

3-Drill pilot holes using drill jig DT 8149

*Pm' 06-06-22①*

4-Acid etch and Alodine tube per QSI 005 4.1

*Pm' 06-06-22①*

W/O:		WORK ORDER CHANGES						
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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Design Mgr	Approval QC Inspector
			Initial Design Mgr	Action Description Design Mgr	Sign & Date			

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

NOTE:-Date & initial all entries

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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Job Number: 27478A

Part Number: D205634041

Job Number:



Seq. #:

Machine Or Operation:

Description :

5-Open holes to 0.500" as per Dwg D2580 without cutting fluid

6-Countersink holes as per Dwg D2580 without cutting fluid

7-Deburr and blow out all chips from inside of tube

8-Bond web in place per QSI 015. Allow 12 Hrs. cure time before cutting

Pick:

Qty	Part Number	Description	Batch
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A/R	Sikaflex-291	m/0193	
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Sikaflex expire date: 06-11-01

Start Time: 4:00

Fin Time: 6-6-28

DP 06-6-27

Pm '06-06-27

5.0

BENDING

BENDING MACHINE



Comment: BENDING MACHINE

1-Bend as per program D2580.C on CNC Bender and Folio FT009

2-Cut tubes as per Dwg. D2580

DP 6-6-28

6.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Deburr ends after cutting. Remove alodine from around holes

Pmc / BE 06-06-30

7.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

06-06-30

8.0

D25763

Step (Machining Detail)



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
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1	D2576-3	Step	
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23060 BE 06-07-04

W/O:		WORK ORDER CHANGES						
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Job Number:



Seq. #:

Machine Or Operation:

Description :

9.0

D2579

Crossbolt Spacer



Comment: Qty.: 20.0000 Each(s)/Unit Total: 20.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
20	D2579	Spacers	B25977 BE 06-07-04

10.0

LARGE FAB 1

LARGE FABRICATION RESOURCE 1



Comment: LARGE FABRICATION RESOURCE 1

1-Prepare tube for welding D2576-3 StepRemove alodine as required. BE 06-07-04

2-Weld step D2576 as per Dwg. D2580 and QSI 004

A/R

Aluminum Rod

M100660 BE 06-07-04

3-Weld crossbolt spacers D2579 as per Dwg. D2580 and QSI 004. For D2579

spacers, weld one

side, pass 3/8" drill, weld other side, pass 3/8" drill

A/R

Aluminum Rod

M100660

BE 06-07-04

4-Grind welds as per Dwg D2580 Grind flush ridge made from bending

PM 06-07-12

5-Drill holes for wearplates using DT 8217Open holes to 19/64", adjust stopper not to hit web. Debur

PM 06-07-12

6-Counterbore crossbolt spacers to 7/16" ID x 1.0" deep as per Dwg D2580. Debur holes

7-Drill pilot holes for aft cap using DT 8215Open holes to #6 Drill bit. Debur

8-Drill pilot holes for Tow ring using DT8091, open to .640"and Debur

DP  
6-7-13

11.0

QC5/9

WELD INSPECTION



Comment: WELD INSPECTION

Inspect weld and Counterbore work to Step 20

2-07-19 PD 06-07-14

12.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Powder Coat White (Ref: 4.3.5.2) as per QSI 005 4.3

SC 06/07/25

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Job Number:



Seq. #:

Machine Or Operation:

Description :

13.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

DL 06/07/25 (1)

14.0

D25771

Wearplate Fwd



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
1	D2577-1	Wearplate	B25137

15.0

D25773

Wearplate Aft



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
1	D2577-3	Wearplate	B26058

16.0

D25775

Wearplate, Centre



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
1	D2577-5	Wearplate	B24199

17.0

ALS71032130

Insert



Comment: Qty.: 44.0000 Each(s)/Unit Total : 44.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
44	ALS7-1032-130	Washer insert	M19393

18.0

AN960JD10L

Washer



Comment: Qty.: 44.0000 Each(s)/Unit Total : 44.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
44	AN960JD10L	insert washer	M104291

DL 06/07/26 (1)

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Job Number: 27478A

Part Number: D205634041

Job Number:



Seq. #:

Machine Or Operation:

Description :

19.0

AN34A

Bolt



Comment: Qty.: 44.0000 Each(s)/Unit Total : 44.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
44	AN3-4A	Bolt	M18310

20.0

D25941

Plug



Comment: Qty.: 16.0000 Each(s)/Unit Total : 16.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
16	D2594-1	O-RING plug	B25593

21.0

D25943

O-Ring



Comment: Qty.: 16.0000 Each(s)/Unit Total : 16.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
16	D25943	Plug O-Rings	B241041

22.0

D2855

Cap



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Cap

Batch: B23925A

23.0

AN35A

Bolt



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Bolt

Batch: M15205

24.0

AN960JD10L

Washer



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Washer

Batch: M101291


OK 06/07/26 (1)

W/O:		WORK ORDER CHANGES							
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NOTE: Date & initial all entries

NCR: Yes ☒ No ☐ DQA:  Date: 06/08/01  
QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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Job Number: 27478A

Part Number: D205634041

Job Number:



Seq. #:

Machine Or Operation:

Description :

25.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

1-Install inserts & wearplates as per Dwg. D2580. Use a drop of Sikaflex on insert holes before installing wearplates

A/R Sikaflex-291 M100623

Sikaflex expire date: 02/07

2-Coat D2594-3 O' rings with Petroleum Jelly and install on D2594-1 plugs as per Dwg D2580

3-Inspect for foreign object per QSI 024

4-Install 2855 Aft Cap as per Dwg D2580 and seal Fwd Step & Aft Cap with Sikaflex. Clean excess adhesive

A/R Sikaflex-291 M101623

Sikaflex expire date: 02/07

5-Wing Walk as per Dwg D2580 and QSI 005 4.4

M101667

Batch:

FC 06 07 26 ①

26.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: Inspect Aft Cap, Fwd Step and Wing Walk of work to Current Step Inspect for Foreign objects per QSI 024

27.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D205-634-041

Location: \_\_\_\_\_

PPP Rev: \_\_\_\_\_

N/A

28.0

DC

DOCUMENT CONTROL



Comment: DOCUMENT CONTROL

Inspection Level 21

06/08/01

Job Completion



06.08.01

W/O:		WORK ORDER CHANGES						
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QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_



RELEASED  
98/09/17 DS

DESIGN DIP	DRAWN BY SP	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED DIP	APPROVED SP	DRAWING NO. D2580	REV. C SHEET 1 OF 2
DATE 98.08.26		TITLE 205 SKIDTUBE ASSEMBLY	SCALE NTS
A	96.09.16	NEW ISSUE	
B	96.12.02	AS MANUFACTURED	
C	98.08.26	REDRAWN, INCLUDED DEO 9094/9097	

QTY	Part Number	Description
X	D2580-041	SKIDTUBE ASSEMBLY
*	D2500-1	EXTRUSION
1	D2596	205 WEB
1	D2575	AFT CAP
1	D2576 - 3	STEP
20	D2579	CROSS BOLT SPACER
16	D2594-1	PLUG
16	D2594-3	O-RING
1	D2577-1	WEARSHOE
1	D2577-3	WEARSHOE
1	D2577-5	WEARSHOE
44	ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or ALS4-1032-130	INSERT
46	AN3-4A	BOLT
46	AN960JD10L	WASHER

# 00.08.28  
UP 00.08.28

EFFECTIVE DEOS  
98/12/14  
DEO 9124  
DED 9183

#### GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 2) LENGTH OF D2500-1 EXTRUSION BEFORE BENDING = 190 INCHES \*
- 3) INSERT D2596 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
- 4) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- 5) USE DART DRILL TEMPLATE TD2577-205 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTION D-D (44 PLACES) AFTER FINISH. INSTALL AN3-4A BOLTS AND AN960JD10L WASHERS WITH SIKAFLEX-241.
- 6) WELDING TO BE DONE PER DART QSI 004.
- 7) FINISH:  
ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB  
POWDER COAT ASSEMBLY GLOSS WHITE (REF 4.3.5.1) PER DART QSI 005 4.3  
BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4
- 8) INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES).

WORK COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 27478A

Diagram illustrating the underside of a propeller with grinding locations marked:

- GRIND FLUSH (4 PLACES)
- GRIND FLUSH
- GRIND FLUSH
- LOCATION RIDGE ON UNDERSIDE OF D2576

Diagram illustrating the assembly of a bolted joint. The components and dimensions are labeled as follows:

- DRILL PRIOR TO D2575 CAP INSTALLATION (2 PLACES)
- SEAL WITH SIKAFLEX-241
- AN3-4A BOLT (1)
- AN96QJ10L WASHER (1) (2 PLACES)
- D2575 CAP
- 0.40

D2579 SPACER

WEB (REF)

130 (REF)

AFTER PERFORM

1. CHA
2. INS
3. WE

D2596 WEB (REF)  
ALS7-1032-130 (REF)  
(TYP 44 PLACES)

NO. 27478A

[illegible]

D2500-041 ASSEMBLY DETAIL

WELD AS PER DETAIL B

BLACK ANTI-SKID TOP OF STEP TO 0.5 ABOVE BOTTOM EDGE

0.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5

BLACK ANTI-SKID TO 0.5 ABOVE LOCATION RIDGE

P P P P P P P P

D D

REFER TO DETAIL C

D2577-3

8

D2577-5

D2577-1


AN3-4A BOLT (1)  
AN960J101 WASHER (1)  
(44 PLACES)

DESIGN *DMH*

DRAWN BY *CB*

**DAR**

RELEASE  
98/09/17 DS

DESIGN <i>DH</i>	DRAWN BY <i>CP</i>	 <b>DART AEROSPACE LTD</b> MARKHAM, ONTARIO, CANADA
CHECKED <i>DH</i>	APPROVED <i>JS</i>	
DATE 98.08.26	DRAWING NO. D2580	REV. C SHEET 2 OF 2
	TITLE 205 SKIDTUBE ASSEMBLY	SCALE 1:24